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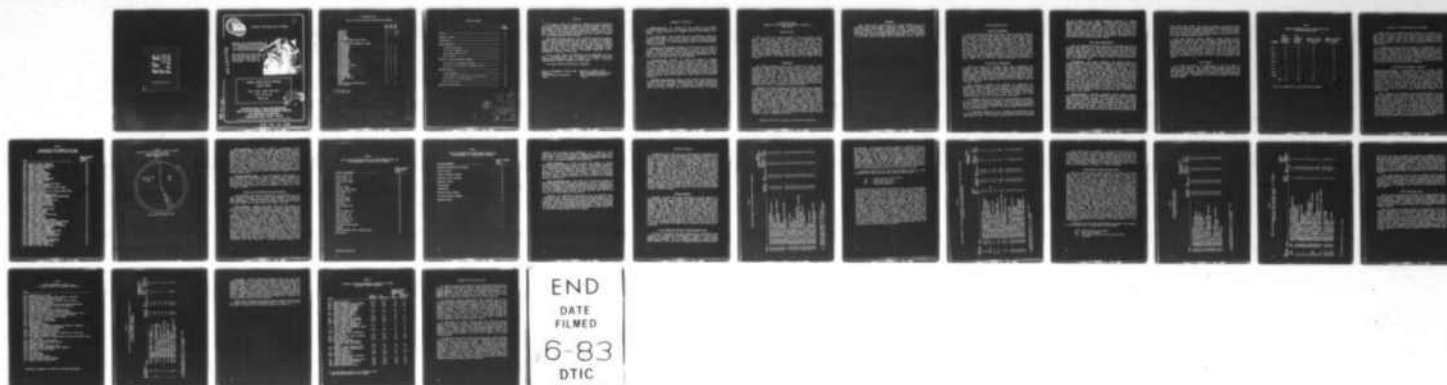
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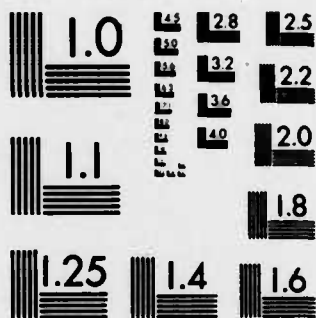
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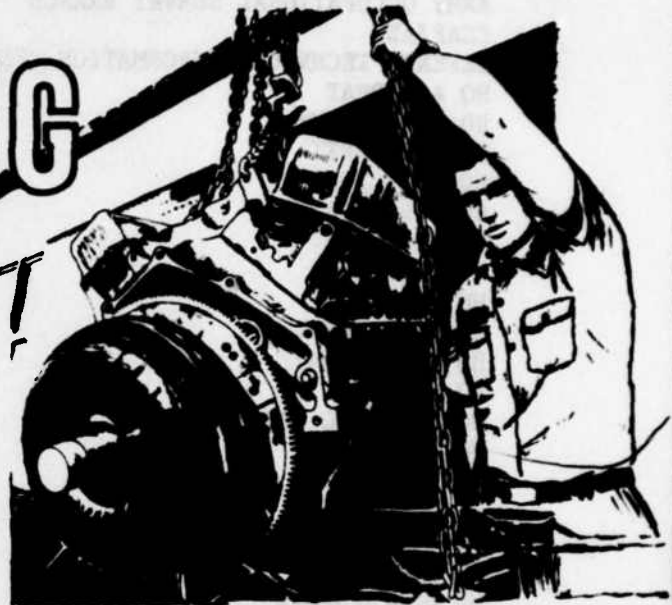


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UNITED STATES AIR FORCE

# TRAINING REPORT



GENERAL PURPOSE VEHICLE MECHANIC  
CAREER LADDER

AFSCs 47232, 47252, AND 47275

AFPT 90-472-442

MARCH 1983

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OCCUPATIONAL ANALYSIS PROGRAM  
USAF OCCUPATIONAL MEASUREMENT CENTER  
AIR TRAINING COMMAND  
RANDOLPH AFB, TEXAS 78150

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## PREFACE

This report presents the results of a detailed Air Force Occupational Survey involving the training requirements for first-enlistment personnel in the General Purpose Vehicle Mechanic (AFS 472X2) specialty. The project was initiated in response to a need for current job information in the career field. Authority for conducting occupational surveys is contained in AFR 35-2. Computer printouts from which this report was produced are available for use by operational and training officials. → to iv

Chief Master Sergeant Robert M. Wing, Inventory Development Specialist, developed the survey instrument for this project. Ms Viola L. Allen and Ms Elena J. Weber analyzed the data and wrote the final report. Computer products for this report were generated by Mr Bill Feltner and Ms Olga Velez. This report has been reviewed and approved by Lieutenant Colonel Jimmy L. Mitchell, Chief, Airman Career Ladders Analysis Section, Occupational Analysis Branch, USAF Occupational Measurement Center, Randolph Air Force Base, Texas 78150.

Copies of this report are distributed to the organizations shown on page i. Additional copies may be obtained by contacting the USAF Occupational Measurement Center, attention to the Chief, Occupational Analysis Branch (OMY), Randolph AFB, Texas 78150.

This report has been reviewed and is approved.

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## SUMMARY OF RESULTS

1. Survey Objective: The purpose of this report is to provide occupational survey data to use in assessing current General Purpose Vehicle Mechanic training documents and programs involving first-enlistment personnel.

2. Survey Coverage: <sup>from iii</sup> Training emphasis and task difficulty ratings were collected from senior AFSC 47252 (General Purpose Vehicle Mechanic) personnel and AFSC 47275 (General Purpose Vehicle and Body Maintenance Supervisor) members, to help identify both common and vehicle-specific training requirements.

3. Analysis of First-Enlistment Personnel: Tasks performed by the majority of first-enlistment personnel were not specific to any one particular type of vehicle. First-term members repaired and maintained a wide variety of different vehicle systems and system components on general-purpose vehicles. Some minor differences between the first-enlistment MAJCOM groups were found on the tasks performed and vehicles maintained.

4. Training Analysis: Generally, the tasks rated highest in training emphasis were performed by a large percentage of 472X2 first-enlistment personnel. These tasks were not related to any one specific type of vehicle and included tasks covering all types of common vehicle systems. Current STSs for 47232/52 and 47275 personnel provide good coverage of most functions performed with some areas in need of review. Most POI blocks and objectives were supported by survey data. Some objectives, however, needed review and there were numerous tasks not referenced to the POI with high training emphasis ratings and performed by a large number of first-enlistment personnel.

5. Summary and Implications: Before training documents and programs are revised, the issue of cross-utilization among the vehicle maintenance specialties should be addressed. A Utilization and Training workshop on all vehicle maintenance specialties may be necessary to address the utilization issues and to assess current and projected training needs and programs. ↑

TRAINING REPORT  
GENERAL PURPOSE VEHICLE MECHANIC SPECIALTY  
(AFS 472X2)

INTRODUCTION

This is a report of a training analysis of the General Purpose Vehicle Mechanic specialty (AFS 472X2) completed by the Occupational Analysis Branch, USAF Occupational Measurement Center, in January 1983. The survey was initiated to obtain current task and background data for use in the evaluation and management of training programs for this career ladder. Analyses of the job structure, DAFSC groups, AFR 39-1 specialty descriptions, job satisfaction, CONUS and overseas groups, MAJCOM groups, and utilization of Vehicle Maintenance personnel were covered in an Occupational Survey Report (OSR) published in August 1982. Separate training reports on Base Vehicle Equipment Mechanics (AFS 472X0), Special Vehicle Mechanics (AFS 472X1A/B/C/D), and Vehicle Body Mechanics (AFS 472X3) are also available.

Background

The Vehicle Maintenance career field (excluding AFS 472X4 - Vehicle Maintenance Control and Analysis) currently consists of seven separate AFSS through the 5-skill level. These seven AFSSs merge into two AFSSs at the 7-skill level (AFSC 47271 - Special Vehicle and Base Vehicle Equipment Supervisor and AFSC 47275 - General Purpose Vehicle and Body Maintenance Supervisor); additionally, there is a common 47299 (Vehicle Maintenance Superintendent) and CEM Code 47200 (Vehicle Maintenance Manager). As described in AFR 39-1, AFS 472X2 (General Purpose Vehicle Mechanic) personnel inspect, maintain, and repair general-purpose vehicles such as, pickup trucks, staff cars, and buses. AFS 472X2, along with Vehicle Body Mechanics (AFS 472X3), are supervised by 47275 personnel.

Members of the 472X2 specialty receive their 3-skill level upon completion of requirements for Course C3ABR47232, General Purpose Vehicle Mechanic. During the initial training period, AFS 472X2 personnel attend a group-paced course of 48 academic days duration at Chanute AFB, Illinois. Training includes fundamentals of automotive mechanics: inspection, servicing, testing, adjusting, troubleshooting and repair of general-purpose vehicles; gasoline and diesel engines; automotive electrical and emission control systems maintenance; drive trains and brake systems adjustment and repair; manual and automatic transmission replacement and adjustment; heating and air conditioning systems operation, troubleshooting, and repair; front-end and steering system adjustment and repair; warning and lighting system repair; engine tune-up and repair; and winterization, corrosion control, and lubrication. Use of Air Force and commercial publications, hand tools and equipment, and test equipment required to maintain general-purpose vehicles is taught and used in performance exercises.

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## Objectives

This training report provides task data training managers can use in conjunction with career ladder documents to assess the effectiveness of General Purpose Vehicle Mechanic (AFS 472X2) training. Topics discussed in this report include: (1) survey methodology; (2) tasks performed, vehicles maintained, and tools and equipment used by first-enlistment 472X2 personnel; (3) comparison of MAJCOM first-enlistment differences; and (4) assessment of the 3- and 5-skill level 472X2 STS, the 47275 STS, and the 472X2 POI.

## SURVEY METHODOLOGY

### Inventory Development

The data collection instrument for this occupational survey was USAF Job Inventory AFPT 90-472-442, dated April 1981. The job inventory contains task statements covering seven Vehicle Maintenance career ladders (AFSSs 472X0 - Base Vehicle Equipment Mechanic, 472X1A/B/C/D - Special Vehicle Mechanic, 472X2 - General Purpose Vehicle Mechanic, and 472X3 - Vehicle Body Mechanic) plus the Vehicle Maintenance Superintendent (AFSC 47299) and the Vehicle Maintenance Manager (CEM Code 47200). A preliminary task list was prepared after reviewing pertinent career ladder publications and directives, tasks from previous inventories, and data from the last OSR. This preliminary task list was refined and validated through personal interviews with 17 subject-matter specialists at three bases. The resulting job inventory contained a comprehensive listing of 773 tasks grouped under 23 duty headings and a background section containing such information as grade, TAFMS, job title, work area, equipment maintained, and job interest.

### Job Inventory Administration

During the period April through October 1981, Consolidated Base Personnel Offices (CBPOs) in operational units worldwide administered the inventory to job incumbents with AFSSs 472X0 (Base Vehicle Equipment Mechanic), 472X1A/B/C/D (Special Vehicle Mechanic), 472X2 (General Purpose Vehicle Mechanic), 472X3 (Vehicle Body Mechanic), 47299 (Vehicle Maintenance Superintendent), and CEM Code 47200 (Vehicle Maintenance Manager). These job incumbents were selected from a computer-generated mailing list obtained from personnel data tapes maintained by the Air Force Human Resources Laboratory (AFHRL).

Each inventory respondent first completed an identification and biographical information section, then checked each task performed in their current job. After checking all tasks performed, each member then rated each of these tasks on a nine-point scale indicating the relative time spent on that particular task as compared to all other tasks checked. The ratings ranged from one (very small amount of time spent) through five (about average time spent) to nine (very large amount of time spent).

To determine relative time spent for each task checked by a respondent, all of an incumbent's ratings are assumed to account for 100 percent of his or her time spent on the job and are summed. Each task rating is then divided by the total task ratings and multiplied by 100. This procedure provides a basis for comparing tasks in terms of both percent members performing and average percent time spent.

The information collected was used to compare personnel based on the types of tasks they performed and the relative amount of time they spend performing the tasks. Job inventory data provided the basis for analyzing

the job structure of the Vehicle Maintenance specialties and making comparisons between DAFSC groups, CONUS-overseas groups, MAJCOM groups, and job satisfaction indicators. A summary of the analyses of the data is presented in the Occupational Survey Report (OSR) for the Base Vehicle Equipment (AFS 472X0), Special Vehicle (AFS 472X1A/B/C/D), General Purpose Vehicle (AFS 472X2), and Vehicle Body Mechanic (AFS 472X3) career ladders, AFPT 90-472-442, dated August 1982. In addition to using job inventory data for the OSR, percent members performing data for first-enlistment 472X2 specialty groups are presented in this training report along with recently collected task factor ratings.

### Task Factor Administration

Due to the complexity and size of this study, the decision was made not to collect task difficulty and training emphasis data at the same time as tasks performed data were collected. For use in this report, task difficulty and training emphasis booklets were administered to selected senior 47252 (General Purpose Vehicle Mechanic) and 47275 (General Purpose Vehicle and Body Maintenance Supervisor) personnel during the period of April through August 1982. This information is used in a number of different analyses discussed in more detail within this report.

Task Difficulty. Each person completing a task difficulty booklet was asked to rate all inventory tasks on a nine-point scale (from extremely low to extremely high) as to relative difficulty. Difficulty is defined as the length of time required by an average member to learn to do the task. For the purposes of this report, two sets of task difficulty data were used: one for the 472X2 career ladder and one for the 47275 specialty. To obtain the task difficulty ratings for the 472X2 career ladder, ratings from senior 5-skill level 472X2 respondents and from 47275 members who supervised AFS 472X2 personnel were combined. The interrater agreement (as assessed through components of variance of standard group means) for this group of 34 raters was .94, indicating very high agreement among the raters. Ratings from all 47275 members were used to obtain task difficulty ratings for the 47275 specialty. The interrater agreement for this group of 35 members was .94, also reflecting high agreement among the raters. Ratings were adjusted so tasks of average difficulty would have a 5.00 rating. The resulting data is essentially a rank ordering of tasks indicating the degree of difficulty for each task in the inventory.

Training Emphasis. Individuals completing training emphasis booklets were asked to rate tasks on a ten-point scale from no training required to extremely heavy training required. Training emphasis is a rating of which tasks require structured training for first-term personnel. Structured training is defined as training provided at resident technical schools, field training detachments (FTD), mobile training teams (MTT), formal OJT, or any other organized training method. For the purposes of this report, ratings from senior 5-skill level 472X2 respondents and from 47275 members who supervised AFS 472X2 personnel were used to obtain training emphasis ratings

for the 472X2 career ladder. The interrater agreement (as assessed through components of variance of standard group means) for this group of 50 raters was .96, indicating good agreement among raters as to which tasks required some form of structured training and which did not. In the 472X2 ladder, tasks rated highest in training emphasis had ratings of 4.84 and above, with an average training emphasis rating of 2.99.

Like task difficulty, training emphasis ratings provide objective information which should be used along with percent members performing data when making training decisions. Percent members performing data provide information on who and how many personnel perform the tasks. Task difficulty ratings help make decisions on which tasks may require more training time, and training emphasis indicates the tasks which are important in first-enlistment training programs. Using these factors in conjunction with appropriate training documents and directives, career field managers can tailor training programs to accurately reflect the needs of the user by more effectively determining when, where, and how to train first-enlistment 472X2 airmen.

#### Survey Sample

As indicated previously, the administration of the AFS 472XX job inventory, task difficulty, and training emphasis booklets involved three separate survey samples. Table 1 reflects the percentage distribution, by major command, of assigned personnel in the 472X2 career ladder as of the first half of FY1982. Also presented in this table is the percent distribution, by major command, of respondents in the final task difficulty and training emphasis samples.

TABLE 1

**COMMAND DISTRIBUTION OF 472X2 TASK DIFFICULTY AND  
TRAINING EMPHASIS RATERS**

<u>COMMAND</u>	<u>472X2*</u> PERCENT OF ASSIGNED (N=1525)	<u>47275</u> PERCENT OF ASSIGNED (N=354)	<u>PERCENT OF TASK DIFFICULTY RATERS (N=34)</u>	<u>PERCENT OF TRAINING EMPHASIS RATERS (N=50)</u>
TAC	26	18	24	18
SAC	18	19	24	24
USAFE	22	22	15	22
MAC	12	10	17	12
PACAF	6	9	17	14
AAC	2	2	0	0
ATC	3	8	0	2
AFSC	4	5	3	4
OTHER	<u>7</u>	<u>7</u>	<u>0</u>	<u>4</u>
TOTAL	100	100	100	100

\* AFSC 472X2 INCLUDES ALL 3- AND 5-SKILL LEVEL PERSONNEL



## ANALYSIS OF FIRST-ENLISTMENT PERSONNEL

Before efficient, cost-effective training programs can be designed for a career ladder, the jobs and tasks performed by personnel within the career ladder must be defined. One factor, obtainable from occupational survey data, used in assessing training requirements is percent members performing tasks within a career ladder. This report will place emphasis on first-enlistment personnel, since this group is the appropriate target for initial skills training.

To determine the basic functions performed by first-enlistment (1 to 48 months TAFMS) General Purpose Vehicle Mechanics, an analysis of the tasks, jobs, vehicles maintained, and tools and equipment used by these members was performed. Additionally, since major command (MAJCOM) assignment is another possible dimension along which jobs performed by respondents could vary, a comparison of the tasks performed and vehicles maintained by various first-enlistment MAJCOM groups was made. These data used in conjunction with training emphasis and task difficulty ratings can help identify training needs for first-term General Purpose Vehicle Mechanics.

### AFS 472X2 First-Enlistment Personnel

Tasks and Jobs Performed. First-enlistment General Purpose Vehicle Mechanics perform basically a technical job with very little of their job time being devoted to supervisory or managerial duties. The tasks performed by these members are not related to any one specific type of vehicle but, rather, are nonvehicle specific in nature and include tasks related to various types of vehicle systems. A large part of their job involves servicing, removing, installing, adjusting, and inspecting parts and components on vehicle electrical systems. Additionally, these first-enlistment members perform minor repair work on other vehicle systems such as, adjusting brakes, belts, and carburetors; servicing air cleaners, oil systems, and drive belts; and lubricating vehicles (see Table 2 for a more comprehensive display of representative tasks).

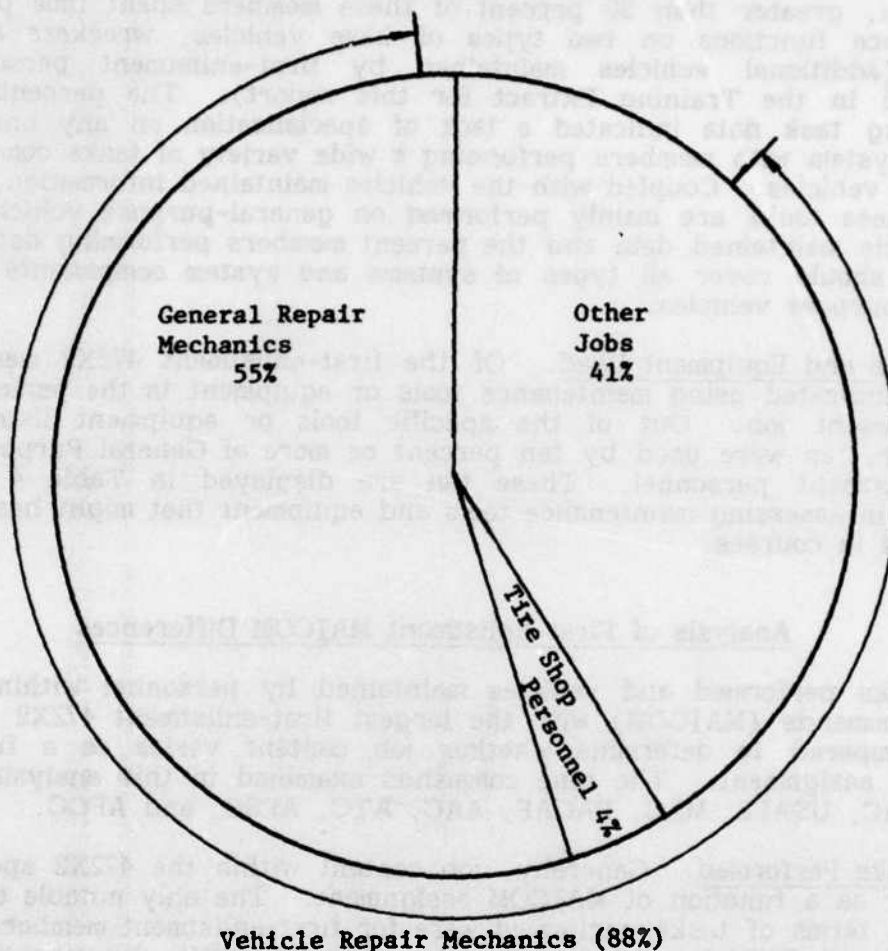
Figure 1 displays the distribution of first-term 472X2 members across the job groups identified in the JOB STRUCTURE ANALYSIS section of the Base Vehicle Equipment, Special Vehicle, General Purpose Vehicle, and Vehicle Body Mechanic OSR. As shown in this figure, the majority of first-enlistment 472X2 personnel grouped together in the Vehicle Repair Mechanics functional area. Within this functional area, 55 percent were concentrated in the General Repair Mechanics job group, along with members from other vehicle maintenance specialties. Other first-enlistment members performed variations of the Vehicle Repair Mechanics' job. These variations were small and centered primarily around more job time being spent on one vehicle system versus another system. There were no job groups identified containing only AFS 472X2 members indicating a large degree of commonality between AFS 472X2 members and members in other vehicle maintenance specialties.

TABLE 2

**REPRESENTATIVE TASKS PERFORMED BY AFS 472X2  
FIRST-ENLISTMENT (1-48 MONTHS TAFMS) PERSONNEL**

<b>TASK</b>	<b>PERCENT MEMBERS PERFORMING (N=557)</b>
I288 REMOVE OR INSTALL BATTERIES	85
I308 REMOVE OR INSTALL SPARK PLUGS	85
H215 ADJUST ENGINE DRIVE BELTS	85
I265 INSPECT BATTERIES	83
H244 SERVICE AIR CLEANERS	83
I268 INSPECT LIGHTING SYSTEMS	82
I266 INSPECT CHARGING SYSTEMS	82
O522 ADJUST PARKING BRAKES	81
I287 REMOVE OR INSTALL ALTERNATORS	81
I269 INSPECT STARTING SYSTEMS	81
I315 SERVICE BATTERIES	79
H227 REMOVE OR INSTALL ENGINE DRIVE BELTS	79
I267 INSPECT IGNITION SYSTEMS	78
I257 ADJUST IGNITION POINTS USING FEELER GAUGES	77
I317 SET IGNITION TIMING	77
L423 REMOVE OR INSTALL HEATING OR COOLING SYSTEM HOSES	76
N484 PACK WHEEL BEARINGS	76
I282 PERFORM BATTERY HYDROMETER TESTS	76
I297 REMOVE OR INSTALL GENERATORS OR STARTER MOTORS	76
H245 SERVICE ENGINE DRIVE BELTS	75
I299 REMOVE OR INSTALL IGNITION POINTS	75
L424 REMOVE OR INSTALL RADIATORS	75
O525 BLEED OR FLUSH BRAKE SYSTEMS	75
M433 ADJUST CLUTCH PEDAL FREE PLAY	75
I264 CHARGE BATTERIES	74
O545 REMOVE OR INSTALL BRAKE SHOES	74
O523 ADJUST SERVICE BRAKES	74
H220 INSPECT MOTOR MOUNTS	74
I298 REMOVE OR INSTALL IGNITION COILS	74
G193 LUBRICATE VEHICLES	73
H219 INSPECT ENGINE PARTS	73
K350 ADJUST CARBURETOR FUEL MIXTURES	73
H249 TEST CYLINDER COMPRESSION IN GASOLINE ENGINES	73
N499 REMOVE OR INSTALL FRONT WHEEL BEARINGS	72
I311 REMOVE OR INSTALL VEHICLE LIGHT ASSEMBLIES	72
K378 REMOVE OR INSTALL CARBURETORS	72
H246 SERVICE ENGINE OIL SYSTEMS	71
L430 TEST STRENGTH OF ANTIFREEZE SOLUTIONS	71
N480 INSPECT DRIVE SHAFT COMPONENTS	70
I273 ISOLATE CHARGING SYSTEM MALFUNCTIONS	70
O548 REMOVE OR INSTALL DISC BRAKE PADS	70
K395 SERVICE FUEL FILTERS	70
I279 ISOLATE STARTER SYSTEM MALFUNCTIONS	70
N497 REMOVE OR INSTALL DRIVE SHAFTS	70
K348 ADJUST AUTOMATIC CHOKES	70
L426 REMOVE OR INSTALL WATER PUMPS	70

FIGURE 1  
DISTRIBUTION OF 472X2 FIRST ENLISTMENT PERSONNEL  
ACROSS CAREER FIELD JOBS  
(PERCENT MEMBERS RESPONDING)  
(N=557)



Vehicles maintained. As shown in Table 3, first-enlistment 472X2 members primarily maintain and repair general-purpose vehicles, such as pickup trucks, staff cars or sedans, and buses. Additionally, as indicated in this table, greater than 30 percent of these members spent time performing maintenance functions on two types of base vehicles, wreckers and dump trucks (additional vehicles maintained by first-enlistment personnel are presented in the Training Extract for this report). The percent members performing task data indicated a lack of specialization on any one type of vehicle system with members performing a wide variety of tasks common to all types of vehicles. Coupled with the vehicles maintained information, the data shows these tasks are mainly performed on general-purpose vehicles. Both the vehicle maintained data and the percent members performing data indicate training should cover all types of systems and system components found on general-purpose vehicles.

Tools and Equipment Used. Of the first-enlistment 472X2 members, 91 percent indicated using maintenance tools or equipment in the performance of their present job. Out of the specific tools or equipment listed in the inventory, ten were used by ten percent or more of General Purpose Vehicle first-enlistment personnel. These ten are displayed in Table 4 to assist trainers in assessing maintenance tools and equipment that might best be used or taught in courses.

#### Analysis of First-Enlistment MAJCOM Differences

Tasks performed and vehicles maintained by personnel within the nine major commands (MAJCOM) with the largest first-enlistment 472X2 population were compared to determine whether job content varies as a function of MAJCOM assignment. The nine commands examined in this analysis included TAC, SAC, USAFE, MAC, PACAF, AAC, ATC, AFSC, and AFCC.

Tasks Performed. Generally, job content within the 472X2 specialty did not vary as a function of MAJCOM assignment. The only notable differences found in terms of tasks performed were for first-enlistment members assigned to AFCC and PACAF. Compared to the other MAJCOMs, incumbents assigned to AFCC and PACAF reported overall lower percentages of members performing tasks related to maintaining engines; maintaining clutches, transmissions, fluid couplings, and torque converters; and maintaining drive lines, steering, and suspension systems. Additionally, less members assigned to AFCC performed tasks dealing with repairing tires. Conversely, AFCC first-enlistment members spent more time (11 percent) on one inspecting and evaluating task, analyzing causes of vehicle failures, than first-term members in other MAJCOMs (one percent or less). Also, substantial percentages (30 to 50 percent) of first-enlistment respondents assigned to AFCC performed many tasks related to repairing and painting vehicle bodies. Such tasks as adjusting hinges or locking mechanisms; applying body fillers, primers, and lettering or identifying insignias to vehicle bodies; removing or installing bumpers, hinges, and locks or latches; painting vehicle body surfaces; and straightening distorted panels, doors, or fenders were performed by smaller percentages (less than 30 percent) of first-term members assigned to the

TABLE 3

VEHICLES AND EQUIPMENT MAINTAINED BY THIRTY PERCENT OR MORE 472X2  
FIRST-ENLISTMENT (1-48 MONTHS TAFMS) PERSONNEL

<u>VEHICLE OR EQUIPMENT</u>	<u>PERCENT MEMBERS MAINTAINING (N=557)</u>
PICKUP TRUCKS, 4X4	93
PICKUP TRUCKS, 4X2	90
STAFF CARS OR SEDANS	85
BUSES	83
STEP-VAN TRUCKS	83
TRAILERS, TRUCK-TRACTOR	82
CARGO TRUCKS, 4X2	77
AMBULANCES	76
LOW BED TRAILERS	73
AMBULANCE TRUCKS	68
VAN TRUCKS	68
TRUCK-TRACTORS, 6X4	66
JEEPS	64
UTILITY TRUCKS, 4X4	63
CARGO TRUCKS, 4X6	60
CARGO TRUCKS, 6X6	58
TRUCK TRACTORS, 6X6	56
MINIBUS VEHICLES	53
TWO-WHEEL CARGO TRAILERS	49
*WRECKERS	38
ARMORED PERSONNEL VEHICLE (RUBBER TIRED)	37
*DUMP TRUCKS	36

\*DENOTES BASE VEHICLES



TABLE 4

TOOLS OR EQUIPMENT USED BY TEN PERCENT OR MORE 472X2  
FIRST-ENLISTMENT (1-48 MONTHS TAFMS) PERSONNEL

<u>TOOLS OR EQUIPMENT</u>	<u>PERCENT MEMBERS USING (N=557)</u>
ELECTRICAL CHARGING SYSTEM TESTERS	67
ENGINE ANALYZERS	47
MANUAL OR HYDRAULIC PRESSES	35
ELECTRONIC IGNITION TESTERS	33
HEADLIGHT TESTERS	29
OSCILLOSCOPES	26
DYNAMOMETERS	19
EXHAUST EMISSION TESTERS	18
GAS SHIELD WELDING EQUIPMENT	11
ARMATURE TESTERS	10

remaining eight MAJCOMs under comparison. It is likely that these differences in tasks performed between commands may be attributed to the small sample sizes that were available for some MAJCOM groups, especially in AFCC (N=10). Also, the percentages of incumbents performing various tasks may be due to the physical location of their work areas.

Vehicles Maintained. In terms of types and number of vehicles maintained, the only differences noted between the nine MAJCOM groups were for first-enlistment personnel assigned to AFCC. These members worked on less vehicles than did members in other MAJCOM groups, and more of the AFCC first-enlistment incumbents maintained farm tractors and telephone maintenance trucks than did other first-termers. Between the other eight MAJCOM groups, the types and number of vehicles maintained was generally the same (specific vehicles maintained data can be found in the Training Extract for this report).

Tools and Equipment Used. Once again, the only difference between the MAJCOM groups occurred for members assigned to AFCC. Ten percent or more first-enlistment AFCC members reported using only three different types of tools or equipment in the performance of their present job, whereas eight or more tools or equipment were used by ten percent or more of the members in the other MAJCOM groups (specific tools and equipment used data can be found in the Training Extract for this report).

Generally, the differences found between the nine MAJCOM first-enlistment groups in terms of tasks performed, vehicles maintained, and tools or equipment used, were small and did not reflect major differences in the overall job content of first-enlistment personnel assigned to the different MAJCOMs. Some differences noted could have resulted from the small sample sizes of some of the first-enlistment MAJCOM groups. In terms of training, any differences in job content between the nine MAJCOM groups probably can be very easily handled through local OJT programs.

## TRAINING ANALYSIS

Occupational survey data are one of many sources of information which can be used to assist in the development of a training program relevant to the needs of personnel working in their first assignment within a career ladder. Factors which may be used in evaluating training are the percent of first-job (1-24 months TAFMS) or first-enlistment (1-48 months TAFMS) members performing tasks, along with training emphasis and task difficulty ratings (previously explained in the TASK FACTOR ADMINISTRATION section). These factors were used in evaluating the Specialty Training Standards (STSs) and the Plan of Instruction (POI) for the 472X2 career ladder. Technical school personnel from the Chanute Technical Training Center, Chanute AFB, Illinois, matched inventory tasks to appropriate sections of the AFS 472X2 STS, 47275 STS, and POI for Course 3ABR47232. It was this matching upon which comparisons are based. It should be noted that comments and tables presented in this section pertaining to questionable elements (or lack of elements) in the training documents are intended to highlight what appear to be possible problem areas. A complete computer listing reflecting the percent members performing, training emphasis ratings, and task difficulty ratings for each task, along with STS and POI matchings has been forwarded to the technical school for their use in further detailed reviews of training documents.

### Training Emphasis

Generally, the tasks which raters indicated were the most important for first-enlistment training (as indicated by training emphasis ratings) were related to nonvehicle specific functions and dealt with such items as maintaining electrical, fuel, exhaust, and brake systems, plus maintaining engine components (see Table 5 for examples of tasks rated highest in training emphasis). Additionally, as shown in Table 5, many of these tasks were performed by more than 30 percent of the first-enlistment 472X2 personnel. The high training emphasis ratings and the percent members performing data indicate that these tasks are well-suited for some form of common structured training, unless other factors override such consideration. Further review of Table 5 reflects that 18 of the 25 tasks listed in this table were matched to the 3ABR47232 POI, indicating they are currently taught in the technical school. Of the seven tasks not matched to the POI, all have over 30 percent of the first-term members performing them, and two were rated above average in difficulty, suggesting that resident course training on these tasks may be appropriate.

### 3- and 5-Skill Level Specialty Training Standard (STS)

A review of the 47232/52 STS, dated February 1981, compared STS items to survey data. Paragraphs containing general information or subject matter proficiency requirements were not evaluated. Overall, the STS provides comprehensive coverage of the functions performed by general purpose vehicle mechanics with survey data supporting significant paragraphs and

TABLE 5

TASKS RATED HIGHEST IN TRAINING EMPHASIS FOR 472X2 MECHANICS

TASKS	TRAINING EMPHASIS**	TASK DIFFICULTY***	PERCENT MEMBERS PERFORMING	
			FIRST- ENLISTMENT (N=557)	DAFSC 47252 (N=869)
*1273 ISOLATE CHARGING SYSTEM MALFUNCTION	7.18	5.87	70	65
*1274 ISOLATE ELECTRONIC IGNITION SYSTEM MALFUNCTIONS	7.14	6.30	54	52
*1272 ISOLATE ALTERNATOR MALFUNCTIONS	6.84	6.03	52	50
*1266 INSPECT CHARGING SYSTEMS	6.82	4.50	82	77
*1271 INTERPRET ELECTRICAL SYSTEM DIAGRAMS OR SCHEMATICS	6.82	5.69	43	47
*1279 ISOLATE STARTER SYSTEM MALFUNCTIONS	6.82	5.04	70	66
*1267 INSPECT IGNITION SYSTEMS	6.78	4.41	78	75
*1269 INSPECT STARTING SYSTEMS	6.72	4.32	81	76
*1276 ISOLATE IGNITION SYSTEM MALFUNCTIONS OTHER THAN ELECTRONIC IGNITION SYSTEMS				
G193 LUBRICATE VEHICLES	6.60	5.39	60	58
I254 ADJUST ELECTRONIC IGNITION SYSTEMS	6.50	3.56	73	63
*1262 BENCH TEST STARTER MOTORS	6.44	5.00	43	41
K366 INSTALL CARBURETOR REPAIR KITS	6.42	4.92	55	48
0536 REBUILD DISC BRAKE CALIPERS	6.42	5.92	40	39
*1256 ADJUST IGNITION POINTS USING DWELL METERS	6.32	5.31	34	30
I294 REMOVE OR INSTALL ELECTRONIC IGNITION SYSTEM COMPONENTS	6.28	3.59	67	62
*1277 ISOLATE LIGHTING SYSTEM MALFUNCTIONS	6.24	4.23	55	52
*M444 ISOLATE AUTOMATIC TRANSMISSION MALFUNCTIONS	6.22	4.98	69	66
*H232 REMOVE OR INSTALL HEAD ASSEMBLIES	6.22	7.27	37	36
*I317 SET IGNITION TIMING	6.18	4.42	63	52
*H216 ADJUST VALVE CLEARANCES	6.18	3.60	77	70
*0532 ISOLATE AIR BRAKE SYSTEM MALFUNCTIONS	6.16	4.07	63	57
K348 ADJUST AUTOMATIC CHOKES	6.12	5.23	40	43
H247 SERVICE POSITIVE CRANKCASE VENTILATION SYSTEMS	6.10	4.18	70	64
*I261 BENCH TEST GENERATORS OR ALTERNATORS	6.08	3.17	63	59
	6.08	5.51	23	24

\* INDICATES TASKS COVERED IN 3ARR47232 POI

\*\* TRAINING EMPHASIS RATING OF 4.84 OR BETTER IS HIGH

\*\*\* TASK DIFFICULTY RATING OF 5.00 IS ABOVE AVERAGE



subparagraphs. In some cases the tasks matched to a particular STS item did not have high numbers of first-enlistment or 5-skill level personnel performing them. These STS areas were related to technical order publication files; maintenance data collection forms; man-hour accounting forms and reports; corrosion control procedures; troubleshooting exhaust systems, and emission control systems; inspecting brake systems; reassembling steering system components; and inspecting and troubleshooting heating and air-conditioning systems. Table 6 lists tasks performed by 30 percent or less of 472X2 first-enlistment and 5-skill level personnel with STS skill-level or training code levels in need of review. Career field managers and training personnel should review these areas of the STS to reaffirm the appropriateness of code levels assigned for 5-skill level career ladder personnel.

Paragraphs within the STS with task performance proficiency codes assigned and not having inventory tasks matched to them included:

12b	Inspect emission control systems
13e(1)	Troubleshoot batteries
16b	Inspect steering systems
17c	Check frame alignment

These items may have no matched tasks because there are no clearly defined inventory tasks appropriate to these elements, the STS element is inappropriately coded as a performance item rather than a knowledge item, or that an applicable task was overlooked in the matching process. For instance, there were no tasks referenced to STS element 13b, read electrical diagrams and schematics. Further, task I271, interpret electrical system diagrams or schematics, was not referenced to any STS paragraph. Since this particular task had a high training emphasis rating and was performed by more than 40 percent of the 5-skill level and first-enlistment personnel, it would have been recommended that task I271 (interpret electrical system diagrams or schematics) be reviewed for inclusion in the STS. It appears, however, that this particular task applies to STS paragraph 13b (read electrical diagrams and schematics) and probably was overlooked during the matching process. Subject-matter specialists and training personnel should review these paragraphs to assure that inclusion in the STS is justified, and to determine the reason for the unmatched elements. (If it is determined that there are no tasks in the inventory which can be matched to a valid performance element, it is requested that the subject-matter specialists draft the appropriate task statements and forward them to the Occupational Measurement Center for review and use in the next inventory rewrite.)



TABLE 6

TASKS PERFORMED BY LESS THAN 30 PERCENT OF 472X2 FIRST-ELISTMENT AND 5-SKILL LEVEL PERSONNEL  
(SUGGESTED FOR STS CODE LEVEL REVIEW)

17

STS REFERENCE	TASKS	5-SKILL LEVEL STS CODE	TRAINING EMPHASIS*	TASK DIFFICULTY**	PERCENT MEMBERS PERFORMING	
					FIRST- ENLISTMENT (N=557)	DAFSC 47252 (N=869)
4d	E144 MAINTAIN TECHNICAL ORDER FILES	2b	3.40	5.27	4	10
4d	E143 MAINTAIN CORRESPONDENCE OR PUBLICATIONS FILES	2b	1.62	5.00	2	6
4d	B 36 DIRECT MAINTENANCE OF PUBLICATION LIBRARIES	2b	1.12	5.06	1	8
4d	B 34 DIRECT MAINTENANCE OF ADMINISTRATIVE FILES	2b	.10	5.24	1	6
7b/7d/7e	E149 POST ENTRIES TO MINOR MAINTENANCE WORK ORDER FORMS (AF FORM 1827)	3c/3c/2b	3.66	3.32	23	29
7b/7d	E155 POST ENTRIES TO VEHICLE AND EQUIPMENT WORK ORDER FORMS (AF FORM 1823)	3c	3.62	3.86	19	27
7b/7d	C 74 CERTIFY MAINTENANCE DOCUMENTATION FORMS	3c	2.02	4.64	9	19
7d	E146 POST ENTRIES TO INDIRECT MANHOURLS LABOR TIME CARD FORMS (AF FORM 1831)	3c	3.50	3.60	11	18
7e	C109 REVIEW MAINTENANCE DATA OR EQUIPMENT RECORD FORMS	2b	1.66	5.08	5	11
7e	C 73 ANALYZE WORKLOAD REQUIREMENTS	2b	1.62	5.61	5	12
7e	E139 ANALYZE VEHICLE INTEGRATED MANAGEMENT SYSTEM (VIMS) REPORTS	2b	1.36	6.84	1	3
9a	V744 APPLY UNDERCOATING TO VEHICLE BODIES	2b	2.76	4.49	6	7
11f(5)	K377 PERFORM EXHAUST SYSTEM SPARK TESTS	3c	4.34	3.91	8	11
12c	K371 ISOLATE EMISSION CONTROL SYSTEM MALFUNCTIONS	3c	6.06	6.53	26	27
14b	J326 INSPECT HYDRAULIC SYSTEM COMPONENTS	3c	3.52	4.88	23	27
14b	J327 INSPECT PNEUMATIC SYSTEM COMPONENTS	3c	3.48	4.99	14	17
16e	N475 DISASSEMBLE OR ASSEMBLE STEERING GEAR BOXES	3c	4.60	5.51	23	21
18b	L405 INSPECT AIR-CONDITIONING SYSTEM COMPONENTS	3c	4.94	5.14	25	23
18b	L412 PERFORM AIR-CONDITIONING SYSTEM LEAK TESTS	3c	4.20	5.16	14	12
18c	L408 ISOLATE AIR-CONDITIONING SYSTEM MALFUNCTIONS	3c	4.72	6.35	19	16

\* TRAINING EMPHASIS RATING OF 4.84 OR BETTER IS HIGH

\*\* TASK DIFFICULTY RATING OF 5.00 IS AVERAGE

Tasks which were not matched to any element of the STS and are performed by 30 percent or more of first-enlistment or 5-skill level personnel are displayed in Table 7 (additional tasks not referenced are presented in the Training Extract for this report). Some examples of the tasks not referenced are removing or installing expansion plugs, broken studs or cap screws, and front wheel bearings; adjusting wheel bearings; and functions related to tire repair. Subject-matter specialists and training personnel should evaluate these tasks to determine if coverage in the STS is warranted.

#### 47275 Specialty Training Standard (STS)

Since the General Purpose Vehicle Mechanic (AFS 472X2) and Vehicle Body Mechanic (AFS 472X3) specialties merge at the 7-skill level into AFSC 47275, there is a separate STS for 7-skill level members. Therefore, in addition to reviewing the 3- and 5-skill level STS, the 47275 STS, dated November 1981, was reviewed, comparing STS items to survey data. Generally, the 47275 STS provides comprehensive coverage of the significant jobs performed by 7-skill level personnel. The STS items dealing with supervisory, managerial, and administrative functions were supported by percent members performing data. Besides these supervisory and management tasks, 7-skill level personnel perform a wide variety of technical tasks, although many of these technical tasks were performed by a low percentage of members. The portion of the STS related to the technical jobs performed by 47275 personnel provides thorough coverage of the technical tasks performed by these members. Many tasks matched to a particular STS item, however, did not have high numbers of 7-skill level members performing them. These STS areas dealt with such items as diesel fuel systems, power shift transmissions, air-conditioning equipment, repairing of body components, and refinishing metal surfaces. Table 8 displays example tasks performed by less than 30 percent of DAFSC 47275 members and the STS items to which these tasks were matched. Other elements with low percent members performing include subparagraphs within items 4 and 5 plus additional subparagraphs within items 9, 11, and 12. Because this is a 7-skill level STS, the high proficiency codes may be warranted since 7-skill level members may supervise performance of these items. Career field managers, training personnel, and subject-matter specialists, however, should review these areas of the STS to reaffirm the appropriateness of proficiency code levels assigned for 7-skill level personnel.

Paragraphs in the STS with task performance proficiency codes assigned and not having inventory tasks matched to them included:

- 9a(4) Prepare vehicles for shipment
- 12b Check frame alignment
- 12e(3) Weld metals and alloys with gas shielded welding equipment

TABLE 7

TASKS NOT REFERENCED TO 472X2 STS  
(30 PERCENT OR MORE PERFORMING)

TASKS	TRAINING EMPHASIS*	TASK DIFFICULTY**	PERCENT MEMBERS PERFORMING	
			FIRST- ENLISTMENT (N=557)	DAFSC 47252 (N=869)
N474 ADJUST WHEEL BEARINGS	5.64	3.69	68	61
H229 REMOVE OR INSTALL EXPANSION PLUGS	5.60	3.87	50	45
I281 MANUFACTURE ELECTRICAL WIRING HARNESES	5.18	6.09	40	42
G206 REMOVE BROKEN STUDS OR CAP SCREWS	5.10	4.52	48	44
N499 REMOVE OR INSTALL FRONT WHEEL BEARINGS	5.10	3.70	72	62
C72 ANALYZE CAUSES OF VEHICLE FAILURES	5.06	5.89	50	49
P562 INSPECT TIRES FOR SERVICEABILITY	5.04	3.19	60	62
C110 ROAD TEST VEHICLES	4.92	3.53	62	68
P558 DISMOUNT OR MOUNT HEAVY-DUTY TIRES	4.54	4.36	44	43
M460 REMOVE OR INSTALL SPEEDOMETER CABLE ASSEMBLIES	4.32	3.27	60	51
P559 DISMOUNT OR MOUNT LIGHT-DUTY TIRES	4.22	3.54	49	47
P568 PLUG TIRES	4.12	3.22	34	34
P565 LEAK TEST TIRES OR TUBES	3.96	2.53	39	39
C78 CONDUCT VEHICLE QUALITY CONTROL INSPECTIONS	3.90	5.03	20	30
P570 REMOVE OR INSTALL VALVE STEMS	3.84	1.97	40	39
P557 COLD PATCH TUBES	3.82	3.13	36	36
G203 PERFORM SOFT SOLDERING	3.72	4.25	30	30

\* TRAINING EMPHASIS RATING OF 4.84 OR BETTER IS HIGH

\*\* TASK DIFFICULTY RATING OF 5.00 IS AVERAGE

TABLE 8

SAMPLE TASKS PERFORMED BY LESS THAN 30 PERCENT OF DAFSC 47275 PERSONNEL  
(SUGGESTED FOR STS CODE LEVEL REVIEW)

STS REFERENCE	TASKS	7-SKILL LEVEL	TASK DIFFICULTY*	PERCENT DAFSC 47275 PERFORMING (N=280)
9a(1)	V744	4c	4.68	10
9a(2)	G212	4c	5.31	12
11e	K362	4c	7.45	3
11e	K373	4c	6.62	6
11e	K365	4c	5.95	9
11e	K391	4c	5.76	3
11e	K392	4c	5.43	3
11e	K394	4c	4.39	5
11e	K377	4c	4.10	9
11e	K390	4c	3.95	18
11e	K385	4c	3.81	21
11g(6)	M456	4c	5.13	10
11g(6)	M443	4c	5.11	6
11k	G188	4c	5.82	7
11k	M437	4c	5.23	9
11k	G211	4c	4.86	6
12a(1)	V762	4c	5.00	17
12a(1)	V765	4c	3.97	15
12a(1)	V761	4c	3.88	22
12a(1)	V759	4c	3.05	17
12d(2)	V750	4c	5.09	15
12d(2)	V766	4c	4.18	14
12d(2)	V751	4c	4.17	19

\* TASK DIFFICULTY RATING OF 5.00 IS AVERAGE

These items may have no matched tasks because the applicable task was overlooked in the matching process, the element is inappropriately coded as a performance item rather than a knowledge item or there are no clearly defined inventory tasks appropriate to that element. These items should be reviewed in detail by subject-matter specialists and training personnel to determine if inclusion in the STS is justified. (If no tasks in the inventory can be matched to a valid performance element, it is requested that subject-matter specialists draft the appropriate task statements and forward them to the Occupational Measurement Center for review and use in the next inventory rewrite.)

Finally, tasks displayed in Table 9 were not matched to any STS element and are performed by 10 percent or more of the DAFSC 47275 personnel. Generally, most of these tasks were related to performing section maintenance and control and administrative functions, performing supply functions, and repairing tires. The tasks listed in Table 9 should be reviewed by subject-matter specialists to determine if they should be included during the next STS revision.

#### Plan of Instruction (POI)

Based on previously mentioned assistance from technical school subject-matter specialists in matching inventory tasks to the 3ABR47232 POI, dated 12 November 1981, a computer product was generated displaying the results of that matching process. Information furnished includes training emphasis (TE) and task difficulty (TD) ratings, as well as percent members performing data for first-job (1-24 months TAFMS) and first-enlistment (1-48 months TAFMS) personnel.

Most POI blocks and objectives appear to be supported by survey data based on percentages of first-term personnel performing tasks or the high training emphasis ratings calculated for those tasks. There are units, however, within Blocks I, III, IV, and V, that are not supported (see Table 10 for the specific units and the tasks matched to these units). All of the tasks identified have less than 30 percent of the first-enlistment population performing and many of these tasks do not reflect high training emphasis ratings (4.84 or higher) or above average task difficulty. If, due to the nature of the tasks, structured training is judged necessary on the units listed in Table 10, regardless of the low percent members performing, it may be more appropriate to shift training on these tasks from the resident course to OJT.



TABLE 9

TASKS NOT REFERENCED TO STS 47275\*  
(10 PERCENT OR MORE 47275 PERSONNEL PERFORMING)

**TASKS**

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G195 MANUFACTURE SPECIAL TOOLS  
K369 INTERPRET EMISSION CONTROL SYSTEM DIAGRAMS OR SCHEMATICS  
E141 EDIT COMPUTERIZED MAINTENANCE LISTINGS  
F165 COORDINATE WITH BASE SUPPLY TO RESOLVE SUPPLY PROBLEMS  
V768 REPAIR FIBERGLASS COMPONENTS  
F176 VERIFY CONTRACT OPERATED AUTOMOTIVE PARTS STORE TRANSACTIONS  
I271 INTERPRET ELECTRICAL SYSTEM DIAGRAMS OR SCHEMATICS  
G202 PERFORM SILVER SOLDERING  
F166 ESTABLISH INVENTORIES OF HIGH TURNOVER ITEMS  
E145 MAINTAIN WORK CONTROL LOGS OR WORK STATUS BOARDS  
F177 VERIFY DUE-IN FROM MAINTENANCE (DIFM) DOCUMENT LISTINGS (R-26)  
F170 MAINTAIN DEFERRED OR DELAYED PARTS BOARDS OR RECORDS  
E142 INITIATE VEHICLE ACCIDENT OR ABUSE LETTERS  
V763 REMOVE OR INSTALL UPHOLSTERY  
E161 PREPARE VEHICLE STATUS REPORTS  
V752 MEND UPHOLSTERY  
G203 PERFORM SOFT SOLDERING  
E163 REVIEW VEHICLE HISTORICAL RECORD DATA FOR WARRANTY, SCHEDULED  
MAINTENANCE, OR REPETITIVE MAINTENANCE  
E169 ISSUE STOCKS OF HIGH VALUE ITEMS  
P558 DISMOUNT OR MOUNT HEAVY DUTY TIRES  
E156 POST ENTRIES TO VEHICLE HISTORICAL RECORD FORM (AF FORM 1828)  
M448 MANUFACTURE SPEEDOMETER CABLES  
E152 POST ENTRIES TO RECORD OF CANNIBALIZATION (VEHICLE MAINTENANCE) FORMS  
(AF FORM 1832)  
G210 REMOVE OR INSTALL V-BELT PULLEYS  
N499 REMOVE OR INSTALL FRONT WHEEL BEARINGS  
N484 PACK WHEEL BEARINGS  
P559 DISMOUNT OR MOUNT LIGHT DUTY TIRES  
M460 REMOVE OR INSTALL SPEEDOMETER CABLE ASSEMBLIES  
P566 PERFORM TIRE BUBBLE BALANCING  
P568 PLUG TIRES  
P561 HOT PATCH TUBES  
P557 COLD PATCH TUBES  
P565 LEAK TEST TIRES OR TUBES  
I316 SERVICE BATTERY CARRIER ASSEMBLIES  
P570 REMOVE OR INSTALL VALVE STEMS

\* SUPERVISORY, MANAGERIAL, AND TRAINING TASKS HAVE BEEN OMITTED.

TABLE 10

POI BLOCKS REFLECTING PERFORMANCE BY A LOW PERCENTAGE OF  
FIRST-ENLISTMENT PERSONNEL  
(LESS THAN 30 PERCENT PERFORMING)

POI REFERENCE BLOCK-UNIT	TASKS	TRAINING EMPHASIS*	TASK DIFFICULTY**	PERCENT MEMBERS PERFORMING	
				FIRST- JOB (N=312)	FIRST- ENLISTMENT (N=557)
I 2f	G213 RESEARCH TECHNICAL PUBLICATIONS	5.66	5.12	24	25
I 2f	F175 RESEARCH FEDERAL STOCK NUMBERS OR PART NUMBERS	4.40	5.22	14	17
III 3b	K370 ISOLATE DIESEL FUEL SYSTEM MALFUNCTIONS	5.24	6.16	12	15
IV 6a	J328 INTERPRET HYDRAULIC OR PNEUMATIC SYSTEM DIAGRAMS OR SCHEMATICS	3.84	6.05	4	6
V 6e	E149 POST ENTRIES TO MINOR MAINTENANCE WORK ORDER FORMS (AF FORM 1827)	3.66	3.32	18	23
V 6e	E155 POST ENTRIES TO VEHICLE AND EQUIPMENT WORK ORDER FORMS (AF FORM 1823)	3.62	3.86	17	19
V 6e	E146 POST ENTRIES TO INDIRECT MANHOURLS LABOR TIME CARD FORMS (AF FORM 1831)	3.50	3.60	8	11
V 6f	G204 PREPARE VEHICLES FOR STORAGE	4.94	4.05	28	27
V 6f	C101 INSPECT VEHICLES FOR STORAGE OR PRESERVATION	3.70	4.14	13	14
V 6f	V744 APPLY UNDERCOATING TO VEHICLE BODIES	2.76	4.49	5	6

\* TRAINING EMPHASIS RATING OF 4.84 OR BETTER IS HIGH

\*\* TASK DIFFICULTY RATING OF 5.00 IS AVERAGE

Additionally, numerous apparently significant tasks with very high training emphasis and 30 percent or more first-job or first-enlistment personnel performing were not matched to POI blocks. These were reviewed to determine if they were concentrated around a common function. Generally, no particular trends or functional grouping of these tasks were noted. Table 11 presents examples of tasks not referenced to the POI. Additional tasks not referenced are listed in the training extract at the end of the POI computer product. Although many of these tasks have average or below average task difficulty ratings, the combination of high training emphasis ratings and high percent members performing indicates formal training may be required and resident technical training could be supported.

Subject-matter specialists and training personnel should further evaluate the subject areas and tasks discussed above in an effort to resolve the necessity for training and the most effective method to accomplish it.

TABLE 11

EXAMPLES OF TASKS NOT REFERENCED TO 3ABR47232 POI BLOCKS  
(30 PERCENT OR MORE PERFORMING)

TASKS	TRAINING EMPHASIS*	TASK DIFFICULTY**	PERCENT MEMBERS PERFORMING	
			FIRST- JOB (N=312)	FIRST- ENLISTMENT (N=557)
G193 LUBRICATE VEHICLES	6.50	3.56	72	73
I254 ADJUST ELECTRONIC IGNITION SYSTEMS	6.44	5.00	41	43
K366 INSTALL CARBURETOR REPAIR KITS	6.42	5.92	36	40
O536 REBUILD DISC BRAKE CALIPERS	6.32	5.31	31	34
I294 REMOVE OR INSTALL ELECTRONIC IGNITION SYSTEM COMPONENTS	6.24	4.23	51	55
K348 ADJUST AUTOMATIC CHOKES	6.10	4.18	68	70
H247 SERVICE POSITIVE CRANKCASE VENTILATION SYSTEMS	6.08	3.17	58	63
I275 ISOLATE GENERATOR MALFUNCTIONS	6.08	5.53	34	35
K350 ADJUST CARBURETOR FUEL MIXTURES	6.08	4.40	72	73
H228 REMOVE OR INSTALL ENGINES	6.04	4.58	57	60
H237 REMOVE OR INSTALL TIMING CHAINS, BELTS, GEARS, OR SPROCKETS	6.04	5.17	49	53
I253 ADJUST DISTRIBUTOR COMPONENTS OTHER THAN IGNITION POINTS	5.90	4.70	55	55
I318 TEST IGNITION COILS	5.84	4.22	45	46
M445 ISOLATE CONVENTIONAL TRANSMISSION MALFUNCTIONS	5.78	5.50	30	33
O553 SERVICE AIR BRAKE SYSTEM COMPONENTS	5.78	4.05	34	39
I319 TEST SOLENOIDS	5.74	4.12	43	46
N474 ADJUST WHEEL BEARINGS	5.64	3.69	65	68
I289 REMOVE OR INSTALL DISTRIBUTOR COMPONENTS OTHER THAN IGNITION POINTS	5.62	4.01	60	59
H229 REMOVE OR INSTALL EXPANSION PLUGS	5.60	3.87	46	50
I297 REMOVE OR INSTALL GENERATORS OR STARTER MOTORS	5.58	3.53	77	76
H244 SERVICE AIR CLEANERS	5.56	1.84	81	83
H264 CHARGE BATTERIES	5.56	3.06	75	74
H278 ISOLATE LIQUID QUANTITY INDICATOR SYSTEM MALFUNCTIONS	5.54	4.44	34	38
O531 INSTALL WHEEL CYLINDER REPAIR KITS	5.52	4.08	50	50
I287 REMOVE OR INSTALL ALTERNATORS	5.50	3.12	80	81
H220 INSPECT MOTOR MOUNTS	5.48	3.26	70	74
H245 SERVICE ENGINE DRIVE BELTS	5.48	2.07	72	75

\* TRAINING EMPHASIS RATING OF 4.84 OR BETTER IS HIGH

\*\* TASK DIFFICULTY RATING OF 5.00 IS AVERAGE

## SUMMARY AND IMPLICATIONS

The general-purpose vehicle-specific training emphasis ratings reported in this study were collected to help Air Force decision makers address the training needs of the General Purpose Vehicle Mechanic specialty. The training emphasis data were compared with occupational information from the August 1982 Base Vehicle Equipment (AFS 472X0), Special Vehicle (AFS 472X1A/B/C/D), General Purpose Vehicle (AFS 472X2), and Vehicle Body Mechanic (AFS 472X3) OSR to review the present training programs.

In determining training requirements, tasks performed and vehicles maintained by first-enlistment personnel need to be carefully considered. For the 472X2 specialty, first-enlistment members perform a wide range of tasks common to all types of vehicles. Additionally, the job performed by these members includes maintaining and repairing various vehicle systems and system components. The vehicle maintained data shows these tasks are performed primarily on general purpose vehicles. In addition, many tasks performed by a large number of first-term personnel also received high training emphasis ratings. From the data, it would appear training for General Purpose Vehicle Mechanics should cover all types of systems and system components found on general-purpose vehicles.

In this report, the current 47232/52 STS, 47275 STS, and POI for Course 3ABR47232 were reviewed. Recommendations were made for possible additions and changes to the training documents. In terms of the POI, there appears to be numerous tasks with high training emphasis ratings and performed by a large number of first-enlistment personnel which are not covered in the current resident technical training course. These tasks should be reviewed to determine if they need to be included in the resident training program.

One important issue which should be addressed before training programs and documents are revised is the question of cross-utilization of personnel among the vehicle maintenance specialties. Although there was some specialization by ladder and shred, members in all specialties performed a common core of nonvehicle-specific tasks with considerable overlap between specialties on the vehicles maintained. Additionally, for the 472X2 and 472X3, the merger at the 7-skill level may not be functioning as expected. Previous experience, as represented by career ladder progression, appears to be affecting the utilization of DAFSC 47275 personnel (see 472XX August 1982 OSR). A Utilization and Training workshop on all vehicle maintenance specialties may be necessary to address these utilization issues and to assess current and projected training needs and programs.